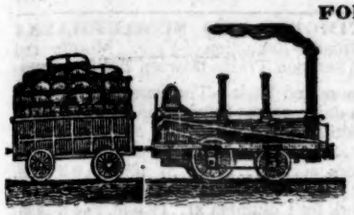
Cuyahoga Steam Furnace

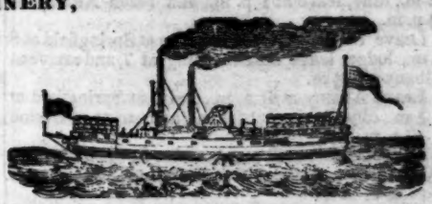
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY, AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 33.] SATURDAY, AUGUST 15, 1846. [WHOLE No. 530, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7-20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES CONnecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J. W. STOWELL, Sup't.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate ot the price of a Ticket for every $500 additional value.

CHAS. MINOT, *Sup'l.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at	6½	A.M.	Leave Albany at	7	A.M.
"	"	7½	"	"	"	8	"
"	"	8½	"	"	"	9	"
"	"	9½	"	"	"	10	"
"	"	10½	"	"	"	11	"
"	"	11½	"	"	"	12	M.
"	"	1	P.M.	"	"	1½	P.M.
"	"	2	"	"	"	2½	"
"	"	3	"	"	"	3½	"
"	"	4	"	"	"	4½	"
"	"	5	"	"	"	5½	"
"	"	5½	"	"	"	6	"
"	"	6½	"	"	"	7	"

☞ The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

☞ Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846. 14 1y

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Montiecello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams 'Bridge trains will be regulated according to the state of the weather. 18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846..Spring Arrangement..1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, $5; fare from Springfield to Boston or Albany, $2 75.

Merchandize trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. 14 1y

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming

a continuous track from Boston

to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from *Boston* and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a. m. and 4½ p.m., or to connect with trains to *Boston*

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846. 1y 32

BOILER IRON.—55 TONS ASSORTED Boiler Iron, Nos. 3, 4 and 5, and of widths of 26, 32 and 36 inches, random lengths, in store, and for sale by A. & G. RALSTON & CO.,
1m30 4 South Front st., Philadelphia.

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for

Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " *through* to Cincinnati..... 8 00

Passengers should not omit to pay their fare *through* from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, *Sup't, etc.*
M. & S. C. R. R. Co.

Sandusky City, Ohio.

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, *Sup't, etc.*
M. & S. C. R. R. Co.

Sandusky, Ohio.

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... $9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, *Agent.*

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally...	50 cts. per hundred.
On measurement goods	13 cts. per cubic ft.
On brls. wet (except molasses and oil)	$1 50 per barrel.
On brls. dry (except lime) ...	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery	40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons	$5 00 per hhd.
On molasses and oil	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot	16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.	95 "
" Sugar, coffee, iron, hardware, etc.	65 "
" Flour, bacon, mill machinery, grindstones, etc.	33⅓ "
" Molasses, per hogshead $9·50; salt per bus.	20 "
" Ploughs and cornshellers, each	75 "

Passengers $10·50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, $7.

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845 ·44 1y

LITTLE MIAMI RAILROAD.—1846.— Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p.m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every $500 in value above that amount. W. H. CLEMENT,

19 Superintendent.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston $21 00
" " " Richmond 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

MARAMEC IRON WORKS FOR SALE. By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on *MONDAY, the 2nd day of November next*, the above named valuable IRON WORKS—together with **8,000** ACRES OF LAND, more or less, on which there are several *valuable and productive Farms* open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of **1** BLAST FURNACE; **1** AIR FURNACE; **1** REFINING FORGE, with large Hammer for making Blooms and Anchonies;
2 CHEFFERY FORGES for Drawing Bar Iron;
1 ROLLING MILL for Rolling Blooms into Bars and Plates;
1 SAW AND **1** GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detatched tracts, comprized in the above quantity, were selected for the advantages they possess;

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branch Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 23 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.

St. Louis, June 6, 1846.

☞ The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) acd Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and *mark price on first paper.* 18t25

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,

1y25 Philadelphia, Pa.

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3½ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by "*Dunham & Co.*," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO.,

June 1. 30 Wall Street.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from $50 to $500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C. 16 tf

CUSHMAN'S COMPOUND IRON RAILS etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, *Civil Engineer*,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applicaitons must be post paid.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON

Mr. 20tf 4 South Front St., Philadelphia.

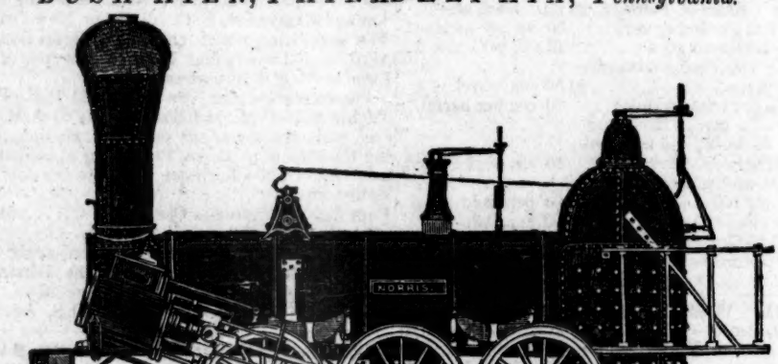
THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

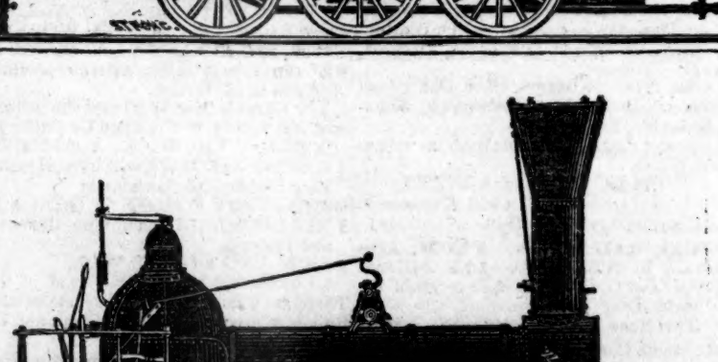
The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

245 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.





MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15	inches	Diameter	of	Cylinder,	× 20 inches	Stroke.
"	2,	14	"	"	"	× 24	"	"
"	3,	14½	"	"	"	× 20	"	"
"	4,	12½	"	"	"	× 20	"	"
"	5,	11½	"	"	"	× 20	"	"
"	6,	10½		"	"	× 18	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Atlantic and St. Lawrence Railroad Co.

Proceedings of a Meeting of the Atlantic and St. Lawrence Railroad Company, held at Montreal on the 30th of July, 1846.

The board of directors of the Atlantic and St. Lawrence railroad company, beg leave to report:

That an act of the provincial parliament of Canada, amending the charter of the company, was passed on the 9th June last—this act is laid on the table, and the directors are happy to state, that it places the company in a position more favorable for the proper control of their affairs.

That since the meeting of the proprietors, held on the 15th of April last, the operations and disbursements connected with the company's affairs, have been confined to the prosecution of necessary surveys, which have been extended over a distance of about 70 miles, and have resulted most satisfactorily, as will be seen by the engineer's report in detail, to be read by the treasurer.

That an agreement has been entered into with the Atlantic and St. Lawrence railroad company, of Maine, providing for mutual corporation, in the prosecution of the general undertaking, and containing such provisions as it has been deemed necessary to agree upon, preparatory to commencing an outlay on a work whose success is so much dependent on uniform action by the two companies. This agreement is laid before the meeting for the information of proprietors.

That on the 4th inst., the Atlantic and St. Lawrence railroad company commenced the actual construction of their portion of the work, by breaking ground at Portland, at which ceremony delegates from this board attended by invitation, and they report that from the enthusiasm manifested by the authorities and citizens of Maine, no doubt need be entertained of the American portion of the line being energetically prosecuted to the point of junction at the frontier. The directors have also gratefully to acknowledge the hospitable and flattering reception tendered to their delegation, and to other Canadian stockholders present, and the strong feeling of mutual interest which prompted the most anxious solicitude for the success of the Canadian enterprize.

The directors having thus detailed the exact progress made in the company's affairs since the last meeting, beg to state that the proprietors have now been called together, in redemption of the pledge given at the general meeting of the 22d January, that before entering upon the execution of any portion of the work (surveys excepted,) a meeting of the proprietors should be called, at which all parties interested might be represented, for the purpose of deciding on future proceedings, and it is with much regret that they find the scripholders in England have not availed themselves of the opportunity thus afforded, of assisting in the final decision of the company's affairs. In their absence, it is the duty of the directors to lay before the meeting certain correspondence which has passed between them and the gentlemen composing the London committee, and which they regret to state indicates a partial withdrawal of confidence in the undertaking, in the English proprietors.

In reference to this correspondence, it must be remarked, that no information has been given to the directors to show the amount of interest in the company held by the dissentients.

Although the directors are assured that they have the legal right to resist the demand of any parties for the return of the deposit paid, yet they feel that to justify a resistance of this demand, and their recommending a prosecution of the work in the face of such a claim, they must be assured as well of the entire and cordial support of the remaining proprietors as of their being placed in such a position as would warrant a just confidence in their ability to proceed, independent of any assistance from dissentient scripholders.

As the decision which the directors expect to arise from the action of the present meeting must be final as to the success or abandonment of the enterprize, they feel it their duty solemnly to record their unanimous opinion, that never since the first agitation of this great work, have there existed such imperative reasons for its formation by the citizens of Montreal and of eastern Canada.

The adoption of free trade as the commercial policy of Great Britain, and the legislative enactment in the United States, made to engross as far as possible the carrying trade from the great lakes and the St. Lawrence, have, in their opinion, in their application to Canada, greatly increased the previous necessity for the Montreal and Portland railroad, and sufficiently indicate the importance of emulating the enterprize of their republican neighbors, and of opening new channels for that commerce which otherwise must be diverted from the St. Lawrence, that the merchants of Montreal cannot possibly maintain a competition with those of the United States, unless they possess equal facilities of intercourse, which this railroad will afford, and that the directors must infer a disastrous reaction in the value of property in this city, unless those interested therein take instant and energetic means to meet the exigencies of their position, and the crisis which has now arisen. Finally, it only remains to repeat, as the revised and deliberate opinion of this board, that the outlay contemplated on this railroad, must prove highly remunerative to the proprietors, as is shown at length in the able report of the chief engineer herewith.

But while expressing their undiminished confidence in the merits of the enterprize, the directors are bound to state, frankly and candedly, that their views do not appear to be shared by their fellow citizens generally—and that from the stockholders themselves, they have not received that cordial support which they had a right to expect from their election—a large number of shares remain in default, and in many other cases much hesitation has been shown in the payment of the first instalment—indeed, it may be remarked, in justice to such of the English subscribers as intended their stock to be bona fide investments in the work, that the apathy evinced in Canada might well warrant their belief in the inexpediency of its prosecution.

Strongly impressed, however, with the paramount importance of the interests contingent upon the construction of this railroad, the board of directors consider it their duty, once again, to appeal to the proprietors, and the Canadian public generally, recommending renewed effort to obtain subscribers, preparatory to a meeting which they propose to call for the 17th August next, when, should they not have received that additional support which they conceive to be necessary, this board will be prepared to advise, that so far as it can be legally effected, the enterprize be abandoned, from the want of sufficient means to carry it out; on the other hand, should the proposed appeal afford sufficient evidence of a determination on the part of the citizens of Montreal, and the adjoining districts, to complete the road, the directors are prepared to recommend to the proprietors the immediate letting of the contracts for the first thirty miles from Montreal to St. Hyacinthe, and the adoption of such further course as will enable them to prosecute the work cautiously, but successfully.

All which is respectfully submitted,

G. Moffatt, *President.*

Montreal, 30*th July*, 1846.

Mr. Moffatt explained that the present meeting was intended to be held on the first of the month, but had been deferred to that day to give an opportunity to the English subscribers to send representatives; but it appeared that none had come.

Resolved, 1, That this meeting do approve of the course followed by the board of directors, as being in conformity with the recommendations of the general meetings of 22d January and 15th April last, as well as with the suggestion of the provisional committee in London—and that the report now read be received and adopted.

Resolved, 2, That it is highly gratifying to this meeting to learn from the report of the chief engineer, that the survey has thus far proceeded most satisfactorily, and that the facilities presented by the route, both in Canada and in the United States, greatly exceed the favorable anticipations previously formed in relation to the railroad.

Resolved, 3, That the actual commencement of the American portion of the railroad and the zeal manifested by the authorities and citizens of Maine, afford the strongest evidence that the Canadian line can proceed with the utmost reliance of being met by them at the frontier, and that no means should now be left untried to redeem the pledges given of hearty co-operation by the inhabitants of this province.

Resolved, 4, That this meeting learns with much regret, that a number of the scripholders in England have expressed their desire to abandon the undertaking, by requiring repayment of their deposits—a demand which this company will more fully consider at their next meeting. But they continue in the belief, that the important interests involved in

the prosecution of this work, arising from the altered commercial policy of Great Britain, dictates renewed exertion in Canada, before it would be prudent to entertain a proposal involving the sacrifice of the expenditure already incurred, when the prospects of the investment proving highly profitable, are daily augmenting.

Resolved, 5, That the stockholders present at this meeting are with great reluctance, compelled to express their acquiescence in the view of the position of the corporation set forth in the report now read, and to declare that unless a more correct appreciation of the merits of this railroad be evinced in Canada, the enterprize cannot proceed for want of adequate means. They would, therefore, most earnestly entreat their fellow citizens to consider that on the prosecution of this undertaking must now mainly depend the future prosperity of Montreal and its vicinity; that to this work the merchants and landholders must look for important aid in that keen competition which the free trade policy of the British government has brought to our threshold; and that by it the resources of the eastern townships will be rapidly opened up, their manufacturing capabilities developed, and their general trade directed to this mart; thus securing to us the supply of a numerous and increasing population, which otherwise will inevitably be lost through the American railways now rapidly approaching the frontier; and that, without this work be constructed, the depreciated value of real estate in Montreal, from its ceasing to be the commercial emporium of Canada, will probably exceed any limit that our worst apprehensions would assign to it.

Resolved, 6, That with the view of leaving no means untried of enlisting a further support of the undertaking, a committee of five be appointed, jointly with the board of directors, to solicit subscriptions of shares, and finally to report as to the number of shareholders to the general meeting of proprietors to be held at the company's office, on Monday, 17th August next, when the question of immediately proceeding with the work, or of legally dissolving the company, will be finally considered. The committee to consist of the following gentlemen, with power to add to their number: Messrs. Elder, Jean Bruneau, O. Berthelot, L. M'Pherson, J. G. Mc Kenzie, Leclair, of St. Hyacinthe.

Resolved, 7, That the report of the chief engineer, A. C. Morton, Esq., be printed, and the proceedings of this meeting be published in the English and French languages, to the extent of 500 copies of each.

Resolved, 8, That the thanks of this meeting be and they are hereby tendered to the honorable chairman for his able and dignified conduct in the chair.

The meeting adjourned.

THOMAS STEERS, *Secretary*.

Montreal, 30*th July*, 1846.

ENGINEERS REPORT.

Montreal, 29*th July*, 1846.

To the President of the St. Lawrence and Atlantic Railroad Co.—SIR: I have the honor to submit a brief statement of the surveys made for your road up to the present date, with some general observations relative to the work and the character of the country through which it passes.

At the date of my last report, the surveys for the southern route had been closed and the engineers engaged in this service transferred to the northern route. The surveys of this route were commenced simultaneously at the St. Lawrence opposite Montreal and the St. Francis near Melbourne by the two resident engineers in the service of the company, and these lines have been united at the village of St. Hyacinthe.

The preliminary surveys for the St. Lawrence division have been extended to St. Hyacinthe, and the final location of the road made between the latter point and the Richelieu river. That portion of the line between the Richelieu and the St. Lawrence may be considered an approximate location, and will require but a few days to perfect the surveys.

It was deemed important in the present state of the water in the St. Lawrence to make the requisite examinations with a view to determine the most favorable point for the terminus of the road, and the resident engineer of this division is now performing this service. On the completion of this survey the location of the road between the St. Lawrence and the Richlieu will be resumed, and the whole line to St. Hyacinthe, a distance of 29·70 miles, will be prepared for contract at an early date

The location of this division of the road has so far advanced as to enable me to present some of its leading features. It is straight from the St. Lawrence to the southerly side of Montarville mountain, a distance of $10\frac{11}{100}$ miles; thence, after curving slightly to the north, it is straight to the Richelieu river, a distance of about $5\frac{6}{10}$ miles. After crossing this stream, a slight deviation is made from a direct line in order to attain the elevated table on the east side of the river and to pass the north side of Belœil mountain, thence to St Hyacinthe the line is straight, a distance of $12\frac{15}{100}$ miles.

The grade of 53 feet per mile and the deep cut encountered by the former survey on the east side of Richelieu river have been avoided and there will therefore be no inclination on this division of the road much exceeding 30 feet per mile, and this will only be required at the above mentioned point, all other portions of the line are level or with but slight inclinations.

The earthwork of this division will be light consisting generally of a continuous embankment of about 5 feet in height, to be formed of earth excavated from side ditches. It is recommended in all cases when practicable to elevate the road bed 5 feet above the general surface of the country with a view to more perfect drainage and to facilitate the removal of snow from the track.

The bridge for crossing the Richelieu river will be about 1,000 feet in length, including the draw, and will be an expensive structure. I have however after much examination of the river determined on a site for this work which may be regarded as highly favorable. The river was carefully examined for a distance of 3 miles in the vicinity of Belœil, and the depth of water found to vary from 14 to 30 feet; the channel in no case, except at the rapids above Belœil, was found of a less depth than 15 feet. After running various trial lines and making numerous measurements and soundings, I have selected a point on the rapids about one mile above Belœil as offering on the whole the greatest advantages for the construction of this bridge.

The channel of the river at this point is near the west shore and is narrow, not exceeding 200 feet in width, its greatest depth is 16 feet. After crossing the channel the remaining portion of the river varies in depths from 2 to 7 feet, and the bottom consists of stone and gravel.

The draw should be introduced at the west end of the bridge where it can be constructed at less expense and may be approached by vessels navigating the river in both directions in a favorable manner. The examinations to determine definitely on the position of the bridge are not yet completed, but these will be made in conjunction with the location of the road on each side of the river.

Should the board decide to put this division under contract, the location could be made and the plans, specifications, etc., prepared for letting the work early in September next.

With a view to give time for the consolidation of the embankment and the more perfect construction of the work in all its parts, I would recommend that the 1st day of July, 1848, should be selected as the time at which the road should be completed and open for business, and that the contracts for various kinds of works and materials delivered, should be limited to such time as will accomplish this object.

As for a portion of each year it will be impracticable to do much work, it will probably require this length of time to complete it in a permanent manner, and I consider the period named a more favorable time for opening the road than in the autumn. Assuming therefore that this division of the road should be completed, at that time, the following provisions should be made:

First. The grading should be placed under contract by the 15th of September next, and vigorously pressed forward with a view to complete it at the earliest practicable period.

Second. The iron should be ordered sufficiently early to enable the manufacturers to ship one-half the quantity required in time to arrive in Montreal in the month of July next, and one-fourth in the month of September, and the remainder in May, 1848.

Third. Two locomotive engines should be ordered, one to be completed and delivered on the road by the first of August, 1847, and the other in June, 1848. Also two passenger cars, three box or covered cars for freight and six platform cars, the latter to be delivered on the road in the months of July and August 1847, and the passenger and covered freight cars to be delivered in June, 1848.—As the laying the track of the road will be commenced at the St. Lawrence, the locomotive and cars will be required for the trans-

portation of iron, timber, ballasting, etc., as the work progresses.

Fourth. The title to all the land required for the road way and stations should be obtained during the present summer and autumn.

On the supposition that this portion of the road will cost £160,000, and that it is to be completed by the time above specified, the quarterly disbursments will be nearly as follows, to wit:

For the first quarter, embracing the months of August, September and October, payments for land damages and grading should be made to the amount of.....	£5,900
The next quarter, November, December and January, will embrace the expenditure for grading and materials delivered, which will amount to about.....	9,325
For that quarter embracing the months of February, March and April, 1847, the disbursements will be principally for materials delivered, and will amount to nearly.....	4,850
For the months of May, June and July, the payments for grading, iron, timber, etc., will be about.....	44,175
For August, September and October, the expenditure for grading, iron, locomotive, cars, etc, will be about.....	43,050
The disbursements for November and December, 1847, and January, 1848, will be nearly.....	15,900
For February, March and April, 1848, the expenditures will probably be about.....	8,350
The last quarter, May, June and July, 1848, the disbursements for tracks, buildings, cars and engines will probably amount to.	28,450
Total.....	£160,000

The above I trust approximates sufficiently near the expenditure required within the periods named, to enable the board to make provisions by timely calls on the shareholders for instalments.

It is proper, however, to state in connection with this subject, that tenders have been received from responsible companies to construct a portion or the whole of the road and invest from 20 to 30 per cent. of the amount of their contracts in the capital stock of the company

Should this arrangement be effected, the percentage of stock would be deducted from the payments made, from time to time, thereby reducing the cash disbursements a corresponding amount.

The results of the surveys of that part of the line between St. Hyacinthe and the St. Francis river at Melbourne, are of a highly favorable nature, and fully confirm the opinion entertained of the northern route at the date of my last report.

These surveys are nearly closed, but I have not yet received the report of the resident engineer, and am therefore unable to give full results. The country, however, is of a favorable character, abounding with large quantities of choice timber and other building materials required for the road.—The sub-soil is of a sandy nature, affording a most excellent material for road bed.

A very considerable portion of the line is straight, and the grades are favorable.

The resident engineer in charge of these surveys, has been instructed to repair with his party to the St. Francis river, near Melbourne, and proceed with the examination of the country up the valley of that stream to Lennoxville, a point about five miles above Sherbrooke.

From this place to the boundary line, the topography of the country indicates that there may be three routes, which may be distinguished as the eastern, middle and western routes. The eastern would follow up one of the western branches of the St. Francis, and cross to the head waters of the west branch of Hall stream, which it would follow to the main stream, thence down the latter to the boundary near the Connecticut river.

The middle route, after leaving the St. Francis valley, would be located up the valley of Moes stream to the main dividing ridge, thence down Leech stream to the provence line, near Canaan, Vermont.

The western route would follow up the valley of the Coatticook river to the boundary line. This stream has its source in the state of Vermont, and interlocks with the Nulhegan river flowing into the Connecticut.

The Atlantic and St. Lawrence railroad company would connect with your road for the middle and eastern routes, through the valley of the Connecticut, and for the western route through the valley of the Nulhegan river.

That corporation has made the necessary surveys to unite with your road on the middle and eastern routes, but no surveys have been made through the valley of the Nulhegan, by which a junction would be formed for the western route.

The resident engineer, in whose charge these surveys are placed, has been instructed to first examine the middle route, which it is supposed may possess superior advantage to either of the others; after which, if circumstances should render it necessary, to examine one or both of the other routes.

The distance from the point where the line enters the St. Francis valley near Melbourne, to Lennoxville, will not probably vary much from 31 miles, thence from the diverging point to the boundary to survey the three routes above mentioned would make a further extension of line of about 90 miles, making in all 120 miles yet to be examined.

This, considering the character of the country, is a greater extent of line than could be surveyed this season by the engineer corps now in the service of the company, provided the first division of your road is put under contract, but as it may be unnecessary to survey more than one or two of these routes, it may be accomplished with one party of engineers. I would not, therefore, at present, recommend any increase of the engineer corps for this service.

Before closing this report, permit me to allude briefly to your road in connection with the Atlantic and St. Lawrence road, which taken together are to form a continuous line from the St. Lawrence, at Montreal, to the Atlantic, at Portland.

From my position as engineer of the whole road, I have become intimately acquainted with the entire country traversed by this great work, and am familiar with its topography, facilities of construction and resources.

Embracing with one view this section of country, it will be observed by reference to the annexed maps and profiles, that there is but one summit, or main dividing ridge, between the waters which flow into the St. Lawrence and those flowing into the Atlantic, that the approach to this summit is through the valleys of large streams, affording long and easy slopes for overcoming its elevation.

The principal highlands intervening between the St. Lawrence and the Atlantic are the White and Green mountain ranges. The former is crossed through the valley of the Androscoggin and Ammonoosuck rivers, with no inclination exceeding 40 feet per mile, but with a slight undulation in the grade of the road, and no heavy work whatever. The latter extends into Canada, but falls off as it approaches the St. Lawrence basin, and is principally avoided by following the valley of the St. Francis and Black rivers.

Nearly the whole route from Montreal to Portland has been carefully surveyed, and it gives me great pleasure to state that I know of no line of equal extent, connecting the western waters with the Atlantic, which will compare with this for the great extent of easy grades, straight lines and cheap construction. While other lines are subjected to great disadvantages from steep grades, abrupt curvature and excessive cost, this is happily exempt from nearly all.

A large portion, equal probably to one-half the whole of this road, will be either level or of inclinations not exceeding 20 feet per mile. The curvatures are all easy, and nearly equivalent to a straight line. Passenger trains may pass over the whole road in the space of ten hours, and the largest class of freight engines will be able to transport 200 tons over the road in either direction.

With a view to illustrate more clearly the great advantages this road possesses for cheap transportation, and the attainment of great velocity, compared with other great roads designed as channels for the western trade, I have prepared diagrams exhibiting the grades and elevations passed over by several of these lines, viz: that between Portland and Montreal, the Western road from Boston, and the New York and Erie road.

It will be observed by reference to these profiles, that the former road has but one main summit, and that the grades are either level or descending with the preponderance of the trade for a large portion of the whole road. That the two last mentioned roads have several high summits and grades from 60 to 80 feet per mile.

As regards the cost of transportation on the St. Lawrence and Atlantic railroad, the most satisfactory information would be gained by comparing it with some line of nearly equal extent and facilities, and designed for general trade.

Perhaps no other road at present in operation approaches nearer to it as regards its object and design than the Western railroad in Massachusetts, yet the cost of transportation on this road will much exceed that on the St. Lawrence and Atlantic, from the more

unfavorable character of the grades and large amount of curvature.

On the Western road there are three elevated summits, to surmount which, the following grades are required, to wit:

3	miles of	60 feet per mile.
1½	"	68 & 69 "
5·6	"	74 "
6	"	78 & 79 "
2	"	82½ & 83 "

The total rise and fall is over 4000 feet. The length of curved line on this road is 75½ miles, or 48 per cent. of its whole length, and the minimum radius is 859½ feet.

Relative to the grades on the road from Montreal to Portland, I have already stated, that the inclinations probably on one-half the whole distance will not exceed 20 feet per mile. The maximum grade as indicated by the surveys thus far will be about 50 feet per mile, and this is confined to comparatively a short distance. It is believed that from 70 to 80 per cent. of the whole road will be straight and the curvatures will be easy.

In the comparison therefore of these roads, it is believed that we are fully sustained by the above facts in the conclusion that the cost of transportation on this road will not be equal but fall considerably below that on the Western road.

In referring to these roads, we desire to be understood as not wishing to draw any invidious comparison, or in the least to detract from the great merits of these roads as a means of communication with the west, for both are entitled to the fullest confidence of the public.

The New York and Erie railroad is as yet unfinished, but the present business of that portion now in operation affords the most gratifying evidence of the entire success of this great project when it shall have been completed.

The Western road has been in operation several years, and as a great thoroughfare it is eminently successful. With its present rate of increase of business it will, in a few years, rank among the most profitable railroad investments in the country.

These roads have been referred to, only with a view to exhibit their leading features as contrasted with this work, and to illustrate more forcibly the success which will always attend works of this character.

The gross receipts of the Western railroad for 1845, were	£203,370
The total expense of operating the road for the same year was	92,655
Annual net income equal to	110,715
The St. Lawrence and Atlantic, and the Atlantic and St. Lawrence railroads will be about 280 miles in length, 130 miles of which are in Canada, and the net annual income supposing it to be in the same proportion as the Western road will amount to	198,719
We will assume for the present the two roads forming a continuous line from Montreal to Portland constructed in the most permanent manner, and fully equipped with cars, engines, depots, buildings, etc., will cost the sum of	2,000,000
To which we apply the net annual income as obtained above we have as the result an annual dividend of nearly 10 per cent	

It will be observed that in the above estimate of revenue it is assumed that the cost of transportation on your road will be as great as on the Western road, which evidently will not be the case. And it is also assumed that the cost of the whole road to Portland will be two million pounds, currency, which is a much greater sum than it ever has been estimated to cost.

Applying as above the business results of the Western railroad for 1845 to your road, and assuming the cost of the road to £1,750,000, the net revenue gives a dividend of 11½ per cent.

I would further observe, that the Western road, in connection with the Boston and Worcester road, forms a continuous line from Boston to Albany of 200 miles in length, and its design is to secure to Boston the western trade. In its construction great obstacles were to be overcome. A mountainous section of country was to be crossed, requiring, as already stated, heavy grades and a large expenditure of money. This has been accomplished, and the experiment, for in this light it was viewed by many, has succeeded.

To give an idea of the formidable obstacles encountered, I would state, that one section of this road known as the mountain division, comprizing a distance of 14 miles; cost £245,000, or £17.500 per mile, and a single mile cost £54,982. The total cost of the road up to Jan. 1, '46, was £1,999,888.

In its business it has to contend with a strong competition, with steamboats on the Hudson river, and another railroad. Notwithstanding these unfavorable circumstances, the gross receipts in 1845 were £203,370, and its net receipts for the present year, will probably equal a dividend of over 6 per cent. on its cost.

With reference to your road as a great thoroughfare, it occupies a most remarkable position connecting as it does the St. Lawrence and the Atlantic, at a point where the New England coast approaches the nearest to the western waters, and having a large and populous city at either terminus, with capacious harbors and a rich intervening country, it cannot fail to be one of the most important and profitable roads yet commenced.

From its peculiar position it never can be subject to competition. It is the shortest and cheapest channel through which the travel and trade of the provinces can reach the seaboard.

With a long natural and artificial communication connecting Montreal with the western waters and the far west, it cannot be doubted that the completion of this last link will change entirely the channel of trade, open new resources, and add vastly to the business of the public works of the province, and to the wealth and enterprize of the country through which it passes. To the city of Montreal it is of vital importance, situated as she will be at the foot of this long line of communication on the one hand and within 10 hours ride of one of the best harbors of the Atlantic coast on the other, she must unavoidable receive large accessions to her trade and commerce, and a vast increase of wealth.

In consequence of the limited time allowed me before the general meeting of the shareholders, I have not been able to present so full and comprehensive a statement as the importance and magnitude of the undertaking demand.

Many subjects of importance have necessarily been omitted which it was my intention to have presented at this time. These will form the subject of a future communication.

In conclusion, I beg leave to refer to the appendix* of this report, for statistical information relative to the length, cost and revenue of the principal railways in the United States, and the effect of railways generally, in developing the resources and increasing the business and wealth of the country through which they pass.

I have the honor to be very respectfully, your obedient servant, A. C. MORTON,
Chief Engineer.

An Important Discovery.

How to remove a Spark or Cinder from the Eye.—Every one who has travelled upon a railroad, has experienced more or less annoyance with the sparks, or cinders from the locomotive, which often lodge in the eye. A friend recommends the following very simple, but efficacious method for relief in such cases; and, having *seen* its operation, we present it to our readers.

Should the obstruction be in the *upper* part of the eye, take the eyelashes of the upper lid between the fingers of one hand, and draw it away from the eyeball, while with the other hand, press the *lower* row of eyelashes completely underneath, (between the eyeball and the upper lid,) closing the eye firmly, at the same inst. A little gentle working, to and fro, of the eyelid, with the finger—thus *thoroughly lapped over each other*—will immediately remove the obstruction. Should the cinder have lodged in the *lower* part of the eye, place the upper row of eyelashes in the same position, underneath the lower lid (as described above,) and the relief is certain.

This may appear simple, and so it is, but we recommend a trial of it, and charge nothing for the advice.

The Way to Make Money on Short Roads.

Holiday Traffic at Whitsuntide on the Greenwich railway, during the years 1843, 1844, 1845 and 1846. The trains ran every five minutes, and at one period of the day, from nine to half past ten, trains were turned out in succession.—*Railway Chronicle.*

	1843.		1844.		1845.		1846.	
	Passengers.	Am't.	Passengers.	Am't.	Passengers.	Am't.	Passengers.	Am't.
		£		£		£		£
Whit Sunday	9,650	297	15,436	323	20,314	420	20,958	426
" Monday	23,237	691	32,173	653	46,523	932	52,096	1,010
" Tuesday	11,190	330	21,776	459	34,342	701	27,391	554
" Wednesday	6,966	208	8,585	177	17,814	375	13,984	288
Total	51,063	1,527	77,972	1,613	118,993	2,431	114,431	2,270

* Appendix omitted.—*Ed. Railroad Journal.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

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The Gauge Question.

We have for some time past carefully abstained from saying much upon this vexed question, not because we had formed no opinion, nor because we considered the determination as of little consequence. The manner in which the discussion has been conducted has satisfied us that the case was not *broad gauge vs. narrow gauge*, but the *Great Western railway and its policy vs. the railways of Great Britain*; in short a local affair, and therefore in its details of trifling interest to us. Had the question been strictly a matter of width of gauge, its discussion would have been of the utmost importance to us, and valuable in its results—but even in the statistics brought forward by either party, there has been so much of unfairness, or rather unfitness, that we could hardly adopt them without note and comment sufficient to neutralize their effect, and withall weary our readers.

Still we do not mean to say that the width of gauge has nothing to do with the matter, nor that useful information has not been afforded as to the relative capabilities of the broad and narrow gauge. We contend that so many other real questions and interests have been included, that the determination could hardly be considered for us as much more than a matter of curiosity.

This determination we now have in the "minute" or report of the board of trade. This paper, which we give in part in this number, commences with a review of the report of the commissioners, with which our readers are well acquainted, [see R. R. J. for March 21 and 28, April 4 and 11: we have omitted this part, and have only given that which represents the views of the board of trade

The substance of the opinion thus given amounts to a restriction of the Great Western and its tributaries to a certain district—and for certain branch and connecting lines insists upon a narrow gauge, in addition to the broad one in use or in construction—the narrow gauge being compulsory, the broad allowed. This decision, if final, will sadly curtail the schemes of the Great Western, and finally, in all probability, compel the adoption of the narrow gauge as a means of self defence.

We have said that one of the parties in this contest was the Great Western and its policy, rather than its gauge. In proof of this we need but mention the fact that this "monster" company, as it would be styled in this part of the world, has interest, directly or indirectly, in lines amalgamated, leased, or now before parliament on its own application, to the number of twenty-seven, or thereabouts—involving an increase of liabilities to the amount of nearly £20,000,000 sterling.

In the various pamphlets which have been published pro and con., there is afforded considerable insight into the spirit of the company. One of these by £ *s. d.*, for a copy of which we are indebted to Mr. G. Ralston, has singularly confirmed our opinion formed upon a preceding review of the most notable arguments on either side. The writer of this pamphlet asserts, and there is every reason to believe the assertion, that the affairs of the company are governed not so much by mercantile men, and upon mercantile principles, as upon a spirit of aggrandizement, and by a power behind the throne, and greater than the throne. "In accordance with this policy, we believe thre are few directorates in which the letter book is more often consulted, and the ledger more seldom; few directorates in which the capacity of handling that potent weapon—the coat button of a member of parliament—is more highly prized." There certainly can be nothing more conclusive as to the false position of a company, than the constant attendance of one or more of its directors on the legislature engaged in the mysterious operations of "lobbying" or "log-rolling." There can be no policy more fatal than what might be called the diplomatic—for in the end, the diplomatist "fixes" the company pretty much in the same cunning way that he "fixed" the legislature. This, nine times out of ten, is the result of a crooked line of conduct so much admired by those who think it vastly more clever to tell a lie than to tell the truth.

If such has been the spirit of the Great Western, or rather its prime movers, [whoever they may be] together with a desire to extend their dominions, rather than increase their revenue, we cannot feel any regret that the loss attendant upon this decision should fall upon them—our only regret would be for the innocent and powerless stockholders, who have been unwillingly or ignorantly led into such a crusade.

As we have said before, the real gauge question is hardly concerned, and as a proof of this, we refer to the report itself.

From the Railway Record,

My lords have proceeded to the consideration of this subject with a deep sense of the importance of the question referred to them, and of the responsibility under which they are placed in advising the course hereafter to be followed. It has been seen that the commissioners recommended—

"1st. That equitable means should be found of producing uniformity of gauge by reducing the broad gauge lines to the narrow gauge.

"2nd. That all public railways now under construction, or hereafter to be constructed, in Great Britain, shall be formed on the narrow gauge."

After long and anxious deliberation, my lords are unable, altogether, to concur with the commissioners in the full extent of these recommendations.

Adverting to the vast expense which must be involved in an entire alteration of the broad gauge, and having regard to the circumstances under which the companies employing this gauge were established, and to the interests they have acquired, my lords cannot feel themselves justified in recommending that it should be proposed to parliament to compel the entire reduction of the 7 ft. gauge. They feel, with the commissioners, "that they cannot recommend the legislature to sanction such an expense from the public monies," nor do they think that the companies to which the broad gauge railways belong can be called upon to incur such an expense themselves (having made all their works with the authority of parliament,) nor even the more limited expense of laying down intermediate rails for narrow gauge traffic.

Still less can they feel themselves justified in proposing that the expense of such alteration should be defrayed by a contribution levied, as has sometimes been suggested, on the rest of the railway companies in Great Britain; and they are unable to suggest any other equitable or practicable means by which the desired uniformity of gauge could be obtained.

The conclusion to which my lords have come respecting the reduction of the broad gauge on existing lines necessarily affects their opinion with regard to the future gauge of lines now in course of construction.

If the line now extending from London to Exeter be preserved on the broad gauge, and yet all the railways in connection with it from the south, for which acts have been obtained, are to be formed on the narrow gauge, then it is obvious that the inconvenience of the break of gauge will not only be continued, but will be increased in amount.

Assuming that an absolute uniformity of gauge cannot now be obtained, they feel that the only practicable course to be pursued is to endeavor to effect such a settlement of the gauges to be used on the several railways already sanctioned, and to lay down such general regulations for the future as will prevent the increase and further extension of an evil they cannot altogether remedy, and will reduce the inconvenience inflicted on the passenger and goods' traffic of the country within the narrowest attainable limits.

They would, therefore, recommend, that the lines for which acts have been obtained, but which have not yet been completed, to the south of the line from London to Bristol, should be permitted to be constructed on the broad gauge, as originally intended. They have had some difficulty in coming to a conclusive opinion on the case of the South Wales line. They are aware that strong arguments may be adduced in favor of requiring this line to be constructed on the narrow gauge; but, adverting to the great public importance of a continuous line of communication with the south of Ireland, and of a second line of railway communication from London to Ireland generally: and having regard to the value of a continuous line to Milford Haven, etc., for the furtherance of the public service; they are of opinion that, on the whole, it would be advisable that the South Wales line, together with its branch to Monmouth and Hereford, should, as originally sanctioned, be formed on the broad gauge.

In the last session of parliament an act was obtained for forming a line of railway from Rugby to Oxford. The act contained the following clause:

Chapter 188, § 35. "That as a commission has been appointed for inquiring whether provision ought to be made for securing a uniform gauge in the construction of railways, and for other purposes in reference to the mode of obviating impediment to the internal traffic of the country; if, in conformity with the report of the said commission, it

shall appear to the board of trade expedient that rails of the same gauge as the rails of the London and Birmingham railway should be laid down on the line hereby authorized between Oxford and Rugby, it shall be lawful for the said board to order and require that such railway upon the said gauge shall be laid down and maintained, and that the company hereby incorporated shall thereupon proceed with reasonable dispatch to execute the same to the satisfaction of the inspector general of railways for the time being; provided always, that nothing herein contained shall prevent the said company from laying down and maintaining, on the whole or any portion of the said line, rails of the same gauge as those now laid on the line of the Great Western railway."

It is their lordships' intention, in the exercise of the powers granted to them by this clause, to require that the narrow guage rails shall be laid down from Rugby to Oxford forthwith.

They would, therefore, submit that it is not necessary to interfere with the construction of the line on the broad gauge, as authorized by the act.

In order to complete the general chain of narrow gauge communication from the north of England to the southern coast, they beg to repeat, with a slight variation, the suggestion of the commissioners, that "any suitable measure should be promoted to form a narrow gauge link from Oxford to Basingstorke," or by any shorter route connecting the proposed Oxford and Rugby line with the Southwestern railway.

With the same view they beg to suggest, that any suitable measure should be promoted for forming a narrow gauge link from Gloucester to Bristol, and so completing the general chain of narrow gauge communication between the manufacturing districts, the centre and north of England, and the port of Bristol.

The only line remaining for consideration is the Oxford, Worcester and Wolverhampton.

In the act by which the company was incorporated in last session, the following clause was inserted:

"That the said company hereby incorporated shall and they are hereby required to lay down and maintain, upon the whole extent of the railway hereby authorized, between the point of junction thereof with the said Grand Junction railway near Wolverhampton, as well as on the said branch railways, by this act authorized, to Kingswinford and Stake Prior aforesaid, such additional rails, adapted to the gauge of the said Birmingham and Gloucester and Grand Junction railways respectively, as may be requisite for allowing the free and uninterrupted passage, as aforesaid, of carriages, wagons and trucks passing to and from the said Birmingham and Gloucester and the said Grand Junction railways respectively, or from the last mentioned railway to the said Birmingham and Gloucester railway, or passing from one portion of the said Birmingham and Gloucester railway to another portion thereof, or to or from any intermediate place between the two said railways to the one or the other of them; and such additional rails shall be laid down and maintained, and used to the satisfaction and approval of the board of trade, and all necessary facilities and accommodations shall be afforded by the company hereby incorporated, or their lessees, for the convenient use thereof; and it shall be lawful for the said board at any time, on complaint made by any company or person interested in the question, that such additional rails have not been laid, or that such facilities or accommodations are not afforded, to order and direct the said company hereby incorporated, or their lessees as aforesaid, to adopt such regulations as they may see fit to require with reference to the laying down of such additional rails, or to the use of the said additional rails and other conveniences aforesaid, and for the purpose of securing such free and uninterrupted passage thereon as aforesaid."

It is their lordships' intention to exercise the power given to them in this instance, as in the case of the Oxford and Rugby line; and on the same grounds they would submit that it is not necessary to interfere with the construction of this portion of the line on the broad gauge in the manner authorized by the act.

And since they regard the break of gauge as a most serious evil, more especially in the conveyance of goods, they conceive that a continuous and a second line of communication between London and the district of Staffordshire, etc., must be regarded as of great value and importance. They accordingly submit that the line from Worcester to Oxford should be made, as proposed, on the broad gauge. They regret that a provision for the formation of a second line of rails was not inserted in the act affecting the portion of the line between Oxford and Worcester, in the terms of the clause regulating the portion lying between the Birmingham and Gloucester line and Wolverhampton; and they would recommend, that if it should hereafter appear that there is a traffic requiring accommodation on the narrow gauge between the Staffordshire districts and the southern coasts, any suitable measure should be promoted by parliament to form a narrow gauge link from the Birmingham and Gloucester line to Oxford, on the same grounds and in the same manner as the commissioners have recommended that it should be formed between Oxford and the Southwestern railway.

Having thus adverted in detail to the several railways now proposed to be constructed on the broad gauge, and already sanctioned by parliament, my lords beg leave to submit the regulations they would recommend to be observed for the future.

My lords do not feel themselves competent to give an opinion on the question alluded to by the commissioners of the merits of the 4 feet 8½ in. gauge as compared with any other among those that have been proposed.

In suggesting, therefore, (with some exceptions to be specified,) the adoption of the recommendation made by the commissioners, that the "4 ft. 8½ in. gauge should be declared by the legislature to be the gauge to be used in all public railways hereafter to be constructed in Great Britain," they do not conceive that any declaration on this point should be understood as positive and final. The working of the wider gauge established in Ireland, and the future history of railways in other countries, may possibly prove the superiority of some other and intermediate gauge; while the advance of science and the course of experience may point out a practicable method of altering an existing gauge, and of easily effecting a great operation which is now generally conceived to be so costly and so difficult as in truth to be impracticable.

With this explanation, my lords beg to recommend, that no line shall hereafter be formed on any other than the 4 ft. 8½ in. gauge, excepting lines to the south of the existing line from London to Bristol, and excepting small branch lines of a few miles in extent, joining the Great Western railway, and conveying to it the traffic of places in its immediate vicinity; and they further recommend, that no bill for any such line as above excepted shall be passed by parliament unless a special report shall have been made by the committee on the bill, setting forth the particular reasons which have led the committee to advise that such line should be formed on any other than the 4 ft. 8½ in. gauge.—They concur, also, with the commissioners in recommending that, unless by the consent of the legislature, it shall not be permitted to the directors of any railway company to alter the gauge of such railway. In conclusion, my lords beg leave to recapitulate the suggestions they have felt it their duty to make:

1. That no line shall hereafter be formed on any other than the 4 ft. 8½ in. gauge, excepting lines to the south of the existing line from London to Bristol, and excepting small branches of a few miles in length, in immediate connection with the Great Western railway; but that no such line as above excepted shall be sanctioned by parliament, unless a special report shall have been made by the committee on the bill, setting forth the reasons which have led the committee to advise that such a line should be formed on any other than the 4 ft. 8½ in. gauge.

2. That, unless by the consent of the legislature, it shall not be permitted to the directors of any railway company to alter the gauge of such railway.

That in order to complete the general chain of narrow gauge communication from the north of England to the southern coasts, and to the port of Bristol, any suitable measure should be promoted to form a narrow gauge link from Gloucester to Bristol, and also from Oxford to Basingstorke, or by any shorter route connecting the proposed Rugby and Oxford line with the Southwestern railway.

4. That the South Wales line and its branches to Monmouth and Hereford should be permitted to be formed on the broad gauge as sanctioned by their act.

5. That the Rugby and Oxford line, and the Oxford, Worcester and Wolverhampton

line, should be permitted to be formed on the broad gauge, as sanctioned by their acts:—that the lords of the committee of privy council for trade shall exercise the powers conferred upon them by the several acts, and shall require that additional narrow gauge rails shall forthwith pe laid down from Rugby to Oxford, and from Wolverhampton to the junction with the Birmingham and Gloucester line: and that if it should hereafter appear that there is a traffic requiring accommodation on the narrow gauge from the Staffordshire districts to the southern coast, any suitable measure shall be promoted by parliament to form a narrow gauge link from Oxford to the line of the Birmingham and Gloucester railway.

Mathematics as a Branch of Professional Study.

Engineering and Architectural Geometry.

The consecutive development of geometrical truths, depends mainly upon the mode in which we start from our first principles. The simplicity of the leading principles is the main object to be kept in view; and these have been proved, by the total failure of numberless attempts at alteration, to be given in the best possible form (always abating some trivial matters of detail) by Euclid himself. Even Legendre, the most logical, and Leslie, the most imaginative of all the authors who have attempted to supersede the Alexandrian, have still been compelled to keep too close to the antique model, to justify the anticipation that theoretical geometry will ever put on a face which has not a striking likeness to her present one. Few suggestions of any consequence can be made to the student, as to his acquisition of the theory of geometry, beyond what have already been offered.

We have before expressed our estimate of the delicacy, refinement and subtlety of Euclid's treatment of the doctrines of ratio and proportionality. There is not to be found in the whole range of modern analysis anything more remarkable and more recondite in its conception than the fifth book of the "Elements." Yet were we to advise a material departure from Euclid's plane geometry in anything, in our address to our present readers, it would be with respect to this book. It is too abstract to be intelligible to the generality of minds under every circumstance of education and social idea; and hence its force is seldom felt and its beauty rarely appreciated by those who read it. Besides, the same truths may be deduced in a much briefer manner; and that manner much more nearly assimilated to the ordinary conceptions which we have been led, in early life, to form of ratio. Certainly the most familiar idea we have of ratio is that of the *number of times* that one magnitude is contained in another of the same species; and this brings us at once to view the doctrine as one of number, and at the same time places it in the domain of pure algebra. It is thus that Legendre views it, and in his *geometrie* he does not even consider it necessary to lay down the fundamental doctrines of proportion. For an *academic education*, in which the main value of any geometry is the training of the mind to habits of close and difficult reasoning, we should most rigidly adhere to Euclid's method; though we should deem it necessary to offer much explanation and illustration of a kind not usually afforded to academic students; yet in reference to the studies of practical men, we do most decidedly advise the adoption of the more compendious, and more easily intelligible processes that algebra furnishes for establishing the same truths. Nor do we thus advise upon a hasty opinion; for we have thought much upon this matter.

The principal objections brought against this proceeding are:

1. The *impurity* which is introduced into geometrical science; and

2. The difficulty of dealing with incommensurable quantities.

As to the first objection, we have already expressed our conviction of the arbitrary character of the canons which decide upon the purity or impurity of a process. We are not as reasonable men bound by such canons; and are as much at liberty to form our own, as Euclid was to form his. We are only bound to reason validly; and that which constitutes an irrefragible proof, we are at full liberty to be satisfied with. As professedly orthodox geometers it is quite another matter—and if we range ourselves under the banners of the school, we are bound by all its dogmas, and tramelled with all its rules. It is, however, the validity, and not the form, of the demonstration that concerns us.

It does, indeed, almost appear that Euclid himself viewed the doctrine of ratio to be a less purely geometrical one than that which governed the composition of the first four books. On what other principle can we account for the laborious construction of *ii.* 11, and the complicated demonstration of *iii.* 35, 36, which admits of extremely brief and elegant treatment by means of proportionals? The neat inscription, too, of a pentagon, by the method of Ptolemy, had been excluded from general knowledge till Bonnycastle, some seventy years ago, demonstrated that construction independently of proportionality.

With respect to the general objection, it is now, whatever it may have been formerly, an argument out of date. There is really no truth in the statement that the doctrine of ratio in respect to incommensurable quantities is either difficult or complex. However, before the student, who shall follow our suggested course, *ab initio*, shall have arrived at this subject, and have studied the algebraic theory of ratio in respect of commensurable quantities, we shall have laid before him, (in one of this series of papers) a sufficiently ample and complete discussion of the particular difficulty to which we refer. We might have done it at this moment, but that we are desirous of first giving him a general view of the character of the subjects, and especially their application, to which we would direct his attention.

It has been already said that Euclid's constructions had not the least reference to practical convenience of operation, nor to the contingencies of circumstances under which a problem may require solution. He never considered that one part of his operations might fall without his drawing board, nor that several lines which may be rendered effective in the construction might have already existed in a diagram. All his processes as far as his purpose rendered them necessary, "begin with the beginning;" his lines and his planes are extended, or extensible by postulate, *ad libitum*; his data may have relative positions that render the *physical* solution absolutely impracticable. His only discrimination of cases is that in which the description of the process becomes varied by means of special relations among the data; and for the most part he makes each of such cases into a separate proposition, and gives the requisite general construction of each—as, for instance, in proposition 9 and 11 of book i.

Most writers, who have professed to treat of practical geometry, have felt the necessity of departing from these restricted rules of construction; and of the easier and more familiar class of problems, they have given these *exigential cases*, and their constructions. In this they have done wisely; but the extent to which, for the most part, they have carried out this plan is extremely limited.—Perhaps, in the construction of perpendiculars, parallels and circles, little is left to be done: but it ought to be remembered that these processes, though of constant occurrence, are not the only ones that present themselves in practice. Nor is mere plan drawing composed entirely of such processes in plane geometry as are to be found in any theoretical work on the subject. Neither, again, is the whole of the engineer's drawing to be performed upon paper. An important portion of it is to be done in the field, upon a scale so large that the character of the instruments must be changed, and consequently the processes themselves must undergo a total constructive change; and, moreover, no small number of operations are necessary, and many more would be desirable, to be performed upon other than plane surfaces, as upon cones, spheres, cylinders and surfaces of revolution generally. For these operations no systematic instructions are to be found in English works, beyond an occasional, and oftentimes erroneous and empirical device that has been, for ages, handed down as a professional heir-loom among the "secrets of art." To supply these demands, the highest order of geometrical skill is required: but of this hereafter.

In speaking of Euclid's problems we have in a modified degree given the character under this aspect of all the ancient writings on geometry, though still in a sense that requires considerable modification. Many of the efforts of the Alexandrian school were directed towards the solution of certain problems—two principally—the trisection of an angle, and the duplication of the cube. Failing to effect these according to the canons of that school, by means of the straight line and circle; yet in their researches they were led to the discovery of properties in geometrical figures of the highest speculative interest, and to the solution of problems of the utmost

value even in our own day. We may instance the treatises of Apollonius especially, on the problem of tactions, the section of ratio, and the section of space.*

It was found in their analyses that so many, respecting almost every kind of subject, ultimately resolved themselves into one or other of these problems, that the geometer of Perga was led to examine all the separate cases to which the relative positions of the data gave rise. These problems were thus placed in the same category with the simpler ones that occur in Euclid's elements, as so many stations at which the labors of the geometer may terminate, without retracing his steps back to the earliest problems of the geometrical series. Several of these problems have, however, subsequently received much more concise and elegant solutions. The problem of tactions especially has been treated with great simplicity and beauty by several foreign writers, by employing the method of centres of similitude and radical axes—and the remarkable discussion of it by Steiner, in the 17th volume of Gergonne's Annales, leaves nothing more to be done on this subject. That most able geometer, the late Mr. Swale, of Liverpool, too, in his "Geometrical Amusements," has reduced the whole of the problems of Apollonius to one more general, and of singular beauty. Sir John Leslie, in the work quoted in the preceding note, has also discussed the principal cases of the Apollonian problems with his characteristic originality; but in one or two of them he has committed oversights somewhat grave. Elegant solutions on the Leslian principle, in which those defects are entirely removed, have been furnished by an able geometer of our own day, Mr. Godward, of the Nautical Almanac office, Gray's Inn.

The researches of the ancients concerning the conic sections, were carried to a great extent. Still the spirit of those researches was precisely similar to that of Euclid's Elements. No more of the practical was brought into play than was absolutely necessary in aid of demonstration; and hence the same remark applies to the great work of Apollonius on this subject, that applies to the "Elements" in simple reference to practical rules of construction. Neither is his classification of properties a convenient one, even for theoretical purposes; and it has therefore been altogether superseded by more modern works even under this aspect. Few men, indeed, now living, have ever looked into Apollonius; those only, indeed, who have been led by their tastes to devote a more than usual attention to these curves under a strictly geometrical form. It cannot be denied, however, that in modern practical as well as more modern theoretical science, the conic sections are the most important of all the subjects of geometrical study. We need not point out how frequently they present themselves for study and construction in the most familiar operations of our profession. But we feel called upon to express our entire condemnation (whether in respect of a liberal or of a practical education) of the system of study which substitutes an analytical treatment of these curves for a strictly geometrical one. We shall, however, have occasion to revert to this subject in our paper on the recent "Cambridge Graces." We also feel bound to enter our caveat against any system of developing the properties of these curves, which does not start with some fundamental property of the intersection of the plane and cone. Boscovich appears to have been the first to depart from the usual method in this respect. He has been followed by (Thomas) Newton and Hustler in Cambridge, and by Sir John Leslie of Edinburgh, among geometrical writers on the subject; while the great majority of those who have composed treatises on the "analytical system," have adopted the method of Boscovich. All distinct geometrical ideas of the curves are however, rendered difficult to attain, and in most cases impossible, by this method; while, in the end, very little, if anything, in point of time is gained, to compensate for this vagueness of apprehension. Why, then, adopt it? Little other of reason, we think, can be given than the vanity of being as "unlike as possible to the common works on the subject."

Our present notice of the conic sections being intended to have a practical bearing, we, therefore, as a general rule, advise the study of only the *general properties* of these curves, together with those peculiar ones that have an immediate influence upon the construction of the curves themselves, and the solution of *problems* relating to them. For this purpose, the method of *transversals*, (the first attempt to systematise which was made by Carnot, though the first application of the principle to constructive purposes was doubtless made by the great architect and geometer, Desargues, of Lyons,) appears to be by far the best adapted. Many foreign writers have developed the properties and constructions of the conic sections under this aspect; but we do not recollect to have seen any English work in which the method has been employed, except the last edition of Hutton's Course, in which it is treated with some degree of amplification, though still not so completely as we could desire. The student, however, who shall have studied the chapters devoted to this subject with due care, will find himself in a condition to carry on any subsequent research that may offer itself without difficulty. In fact, we conceive that the true business of elementary books is not so much that they should contain every property of a figure, as that they should put us in possession of the principles, and engender a habit of self-dependence, that shall enable us to follow out the minute details and applications for ourselves.

Of the organic description of the conic sections we have little to say, beyond, that an instrumrnt for the purpose, generally is yet a desideratum. We do not wish to be understood to speak slightingly of many inventions for this purpose. As far as the ellipse is concerned, considerable mechanical ingenuity is displayed; but as our own wants have led us to examine with care the operation of all the instruments that have come to our knowledge, we have had that kind of experience which still forces us to say that a really serviceable elliptograph is itself still a desideratum. We still, as a general rule, prefer, both for facility and accuracy, the method of constructing by points, and trusting to our

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* A very neat and succinct account of the ancient books, written with the purpose of facilitating the geometrical analysis, is given in the notes to Leslie's work on that subject, which we subjoin. A tolerably full account of the mathematical collections of Pappus may be consulted under that word in Hutton's Mathematical Dictionary.

1. The *Data*—in a single book of considerable length, but containing propositions only of the very simplest kind.

2. The *Section of Ratio*—in two books, which Dr. Halley, with much sagacity and incredible labor, restored, from a manuscript in the Bodleian library. The object of the tract was a solution of this problem, branched out in a multitude of cases, and marked out in various limitations: "through a given point to draw a straight line intercepting segments on two straight lines which are given in position from given points and in a given ratio."

3. The *Section of Space*—in two books. Of these no vestige remained, but Dr. Halley, guided by a few hints from Pappus, very successfully exerted his ingenuity in divining the original structure. It was proposed: "through a given point to draw a straight line cutting off segments from given points on two straight lines given in position, and which shall contain a rectangle equal to a given space."

4. The *Determinate Section*—in two books. These were also lost; but Dr. Simson, assisted by the attempts of Schooten, has restored them in the most luminous manner. Their object was: "to find a point, the rectangles or squares of whose distances from given points in the same straight line, should have a determined ratio."

5. *Inclinations*—in two books. It was proposed: "to insert a straight line, of a given magnitude, and tending to a given point, between two lines which are given in position." This problem was restored by Marinus Ghetaldus, a patrician of Ragusa; and other investigations were given by Hugo d'Omerique, in his ingenious treatise on geometrical analysis, printed at Cadiz in 1698. Two solutions of the case of the rhombus, remarkable for their elegance, appeared in the posthumous works of Huygens, who was imbued with the finest taste for the ancient geometry.

6. *Tangencies*—in two books. Of this tract only some lemmas were preserved, which enabled the celebrated Vieta in a great measure to restore it.—Some of the cases which had escaped him were solved by Marinus Ghetaldus; and farther improvements were made in 1612, by Alexander Anderson, of Aberdeen, an ancestor of the Gregorys.

7. *Plane Loci*—in two books. The object was: "to find the conditions under which a point, varying its position, is yet confined to trace a straight line or a circle given in position." This beautiful train of investigation was partly restored by Schooten in 1850, though after a sort of algebraic form. The ingenious Fermat succeeded in bestowing greater simplicity on the subject. But all these attempts have been eclipsed by Dr. Simson, whose treatise, *De Locis Planis*, published at Glasgow in 1749, is a model of geometrical strictness and elegance.

The six preceding branches of analysis were all the creation of Apollonius of Perga, the most assiduous and inventive of the Greek geometers.

8. *Porisms*—in three books, composed by Euclid. No trace of these now remains, except some obscure hints of Pappus, rendered still more perplexed by the corrupt and mutilated state of his text. The subject has long proved an enigma which it baffled the effort of the ablest and most learned mathematicians to unravel. Fermat advanced some steps: but the honor of completing the discovery was reserved for our countryman, Dr Simson, whose restoration of the Porisms was given to the scientific world in 1776, in a posthumous volume, printed at the expense of the late Earl Stanhope. From that work I have extracted what seemed best suited to my purpose; and I have likewise availed myself of the judicious remarks and illustrations of my late distinguished and most lamented colleague, Professor Playfair.

manual readiness for tracing the curve. Others may judge differently: but such is our own feeling on this head. It is, strictly speaking, a personal question—one of experience and convenience—and one in which every draughtsman is entitled to decide for himself. If however, we concede the perfection of the elliptographs in present use, we must not fail to remind the reader that no one of them is applicable *till we have found two conjugate diameters*, nor generally, *till we have found the principal diameters*. Suppose then, the five conditions which determine an ellipse to be any whatever, (cases the most frequent in extended practice,) is it not obvious that a considerable amount of preliminary and often intricate construction becomes essential for the determination of these diameters? All this must be done before any elliptograph can be brought to bear on the solution; and this will often cost far more labor, and involve a greater number of marks and lines on the paper than the construction of twenty points in the curve would require. Besides this, whatever errors might be committed in these operations for finding the diameters they would all be accumulated in the terminal result, and tend to modify the general curve; while, in constructing by points, the result of each error would affect, by its own amount only, the one point thus independently determined. A better estimate can thus be made of each separate error (and if necessary, due allowance for it) than when all these errors are combined in one final result, such as would be inevitable when we employ the instruments in question.

After all, let it be remembered that the parabola and hyperbola are yet unconstructed by organic processes which anyone can for a moment suppose to be usable, much less convenient. Yet these curves are surely required in architecture and engineering.

We feel, therefore, fully justified in advising the method of constructing by points.—Many systems for this purpose have been proposed; but probably the use of the "mystic hexagram" of Pascal, is one of the simplest forms under which the method can be propounded. Newton's revolving angles, too, have met with favor amongst several French geometers; and the method has been ably and amply discussed by Leslie. The methods of Maclaurin and Braikenridge were simply an application of Pascal's principle; but it has been reserved for the modern French writers, especially Brianchon, to fully develop the method. His *Application de la Theorie des Transversales* (1818,) and his *Memoire sur les lignes du second ondre*, (1817,) will repay the study of every practical man.

With plane geometry and the conic sections, the geometrical splendor of the Greeks terminated. Their conceptions of the geometry of space was somewhat confused, and their researches in this department of science were extremely limited. Upon this subject we must postpone our remarks till a future number of the *Miscellanea*.

The railroad between Northampton and Greenfield will be completed in all this month to Bloody Brook—8 miles this side of Greenfield. The bridge across Deerfield river is a work of great labor, and will not be completed for some two or three months to come. In the mean time the road between that and its termination will be finished.

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It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

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When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
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WILLIAM R. CASEY, Civil Engineer. New York. Address Box 1078, Post-office, New York. 21

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Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.
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Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4½	13	5	10	24	–	50	15-16	20
13	3½	8	3	8½	16	–	27	11-16	13½
14	3½	6	11	7½	12	8	17	9-16	10½
15	2½	5	2	6½	9	4	13½	1-2	7½
16	2½	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

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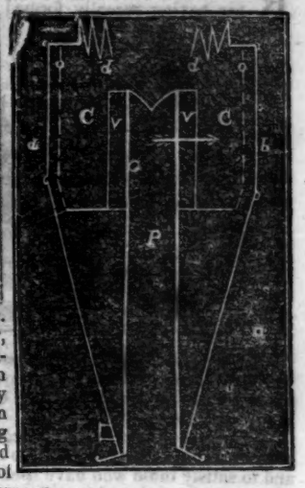
All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

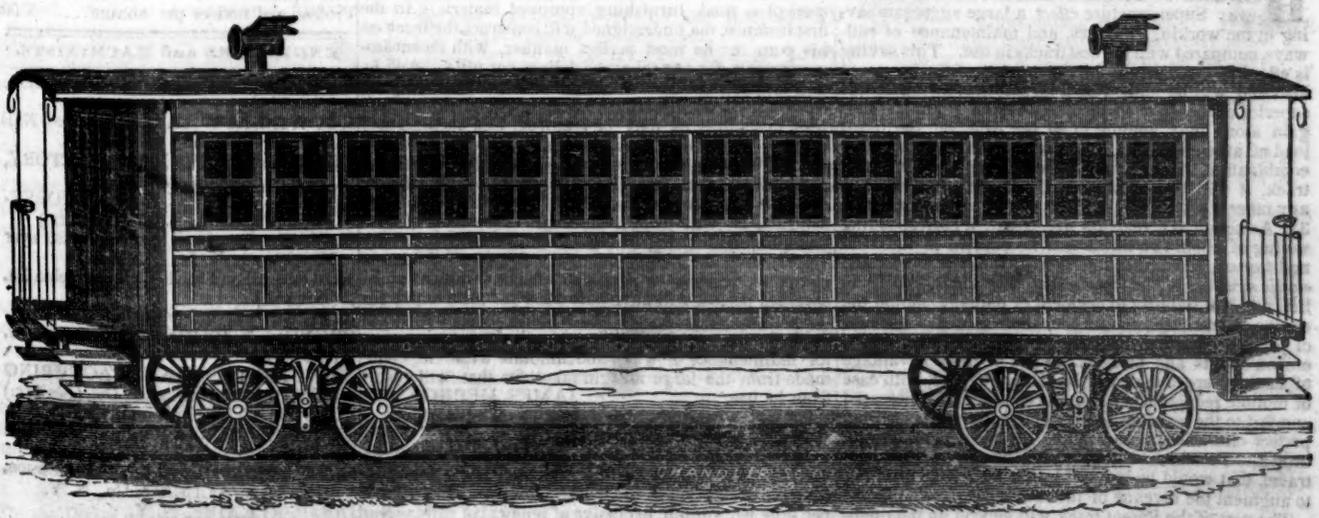
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on ou Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Paten Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, nd for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York. a

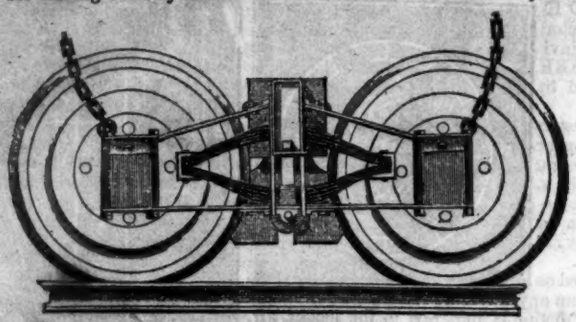
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minues. 1y1

RAY'S EQALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

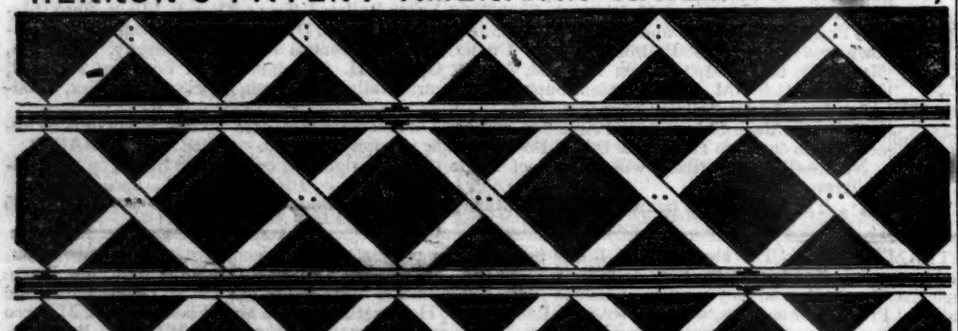
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, Sup't Motive Power.

1y19

HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILway Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the *wear* and *tear* of the *engines* and *cars*, by the *even surface* and *elastic structure* of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really *permanent* and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from $2,300 to $4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to 60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thonsand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in *perfect adjustment*, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportrtion, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only $750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia.

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed $625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
KITE'S Patent Safety Beam. (*See Adv.*)
FRENCH & BAIRD, Philadelphia, Pa. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
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